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ABSTRACT

A study compared actual practice in trade and industrial (T&I) degree granting institutions with standards delineated in Section 2, Standards for Trade and Industrial Education Teacher Education Programs of "Standards of Excellence in T&I Education" published by the U.S. Department of Education in 1985. Mailed questionnaires collected data from all chairpersons of T&I, trade and industry, and vocational industrial education programs listed in "Industrial Teacher Education Directory." Data from questionnaires submitted by 30 respondents were assembled in 5 tables that represented the five phases of the study: institutional characteristics; qualifications of T&I teacher educators; internship/inservice; program competencies; and sex equity. Highest and lowest ratings and percentiles were determined for each characteristic in the five categories. Findings indicated that: (1) the greatest deficiencies in the instructional characteristics area were in the functioning and composition of T&I program advisory committees; (2) 7 out of 28 institutions employed T&I teacher educators who did not meet existing state requirements for T&I teaching certificates; (3) program competencies measured very well with the standards recommendations; and (4) sex equity areas were in need of improvement. Six tables and the instrument are appended. (YLB)

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The Current Status of T&I Teacher Education in the United States

Presented at the American Vocational Association Convention
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The Current Status of T&I Teacher Education in the United States

After a long stagnation in trade and industrial (T&I) teacher education, the Standards of Excellence in T&I Education (USDE, 1985) have prompted an upgrading of programs. This upgrading took the form of providing T&I standards in the following three areas:

1. Standards which are common to all T&I instructional programs at the secondary and post secondary levels.
2. Standards for trade and industrial education teacher education programs.
3. Standards for certification of shop, laboratory, classroom and related teachers of trade and industrial education programs.

The standards study culminated in specific recommendations for each of the aforementioned areas. These recommended standards were intended for use by T&I personnel, administrators, certification committees, teacher educators, state department of education personnel and others for use in upgrading T&I programs.

Purpose and Objectives

The thrust of this study was to compare actual practice in T&I degree granting institutions with standards delineated in Section 2, Standards for Trade and Industrial Education Teacher Education Programs of Standards of Excellence in T&I Education (USDE, 1985).

Descriptive data was compiled which addressed the status of T&I education. Specific questions posed for study were:

1. What were the T&I institutional characteristics?
2. What were the qualifications of T&I teacher educators?
3. What were the provisions for internship/inservice?
4. What were the T&I program competencies?
5. What was the status of sex equity?

Methodology

Sample

The data utilized in this study were gained from questionnaires sent to all chairpersons of trade and industrial, trades and industry, and vocational industrial education programs listed in Dennis (1989-90). Roberts (1971) identifies "trade and

industrial" and "vocational industrial" education as synonymous. Trades and industry programs bear the language of the Smith-Hughes Act (Barlow, 1967) and were also included in the study as synonymous. The 35 institutional programs as identified in Dennis 1989-90 are shown in Table 1.

Returns were received from 24 respondents. A follow up request produced 6 more returns for a total of 30 responses. Two respondents did not complete questionnaires because the T&I programs had been phased out since printing of the directory.

Instrumentation

The instrument utilized in this study is shown in Appendix A. It is an abbreviated version of the section titled "Standards for Trade and Industrial Education Teacher Education Programs" in Standards for Excellence in Trade and Industrial Education (USDE, 1985). The only items removed from the original document were descriptive content questions concerning each of the courses offered by the T&I program as listed in sections D or E of the standards document (USDE, 1985).

Validation, Reliability

The original document, Standards for Excellence in Trade and Industrial Education (USDE, 1985), was assessed for validity and reliability by a 31 member committee. Inasmuch as changes were made to abbreviate the original instrument, a seven person committee composed of teacher educators, vocational education directors, vocational principals and industrial training personnel served as an expert committee to assess validity and reliability of the instrument.

Data Collection and Analysis

The names of industrial education department chairpersons were obtained from the Industrial Teacher Education Directory (Dennis, 1989-90). Data was transferred from the questionnaires submitted by respondents to five tables which included each of the five phases of the study. These phases were:

1. Institutional characteristics
2. Qualifications of T&I teacher educators
3. Internship/inservice
4. Program competencies
5. Sex equity

An analysis of the data was accomplished by determining highest ratings, lowest ratings and percentiles for each characteristic in the five aforementioned categories.

Results

Tables 2 through 6 portray the data received from respondents in the five aforementioned areas. In the Instructional Characteristics area the data shows the greatest deficiencies in the functioning and composition of T&I program advisory committees. The (1) evaluation of occupational experience for degree pursuing students and (2) qualified program leader tied for the highest percentage.

The Qualifications of Teacher Educators area was rather consistent for all three criteria in the percentage meeting or exceeding standards. Of great concern, however, is that 7 out of 28 institutions employed T&I teacher educators who did not meet existing state requirements for T&I teaching certificates.

The Internship/Inservice area was also quite consistent for the three criteria named. The "avenue for providing skill updating" was lowest. However, updating requires greater attention for inservice teachers than degree teachers who have recently passed the NOCTI or equivalent.

The Program Competencies area data indicated that most T&I degree granting universities were offering instruction in the recommended areas. The high was T&I methods and the low was industrial cooperative training.

The Sex Equity area criteria data were quite consistent. The low areas were (a) plans for recruitment, placement and retention of female students and (b) workshops for sex equity. It was apparent however that most programs were encouraging faculty to play key roles in encouraging nontraditional candidates to T&I programs.

Conclusions

1. T&I teacher education programs throughout the nation could utilize more fully Standards of Excellence in T&I Education (USDE, 1985) in planning and development.
2. Advisory committee and sex equity areas are in greatest need of improvement.
3. Program competencies measured very well with the standards recommendations.
4. Inasmuch as "qualifications of teacher educators" as a category ranked poorly, greater attention should be given to this area in the state plans.

REFERENCES

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Table 1.

Colleges and Universities Which Offer Degrees in Trade and Industrial or Vocational Industrial Education 1989-90

	No. of Graduates		
	BS/BA	MS/MA	PhD/EdD
Alabama A & M University	0	2	0
Auburn University	3	3	0
*Arizona State University	6		
Northern Arizona University	14		
University of Arkansas at Pine Bluff	1		
Colorado State University	0	0	
Florida International University	5	2	
Georgia Southern College	4	3	
Georgia State University	10	5	0
Savannah State College	0		
University of Georgia	10	15	0
Valdosta State College	20		
University of Hawaii	4	1	0
Louisiana State University		1	
*Michigan State University		11	1
*Western Michigan University	10		
Mississippi Valley University	0		
Northern Montana College	1		
State University of New York at Buffalo	28	7	
North Carolina State University	1	0	
Kent State University	0	2	
Ohio State University	0	0	0
Central State University	3		
Oklahoma State University	13	19	
Oregon State University	1	1	
Temple University	12	7	2
Pennsylvania State University	7	4	3
University of Pittsburg (grad. only)	12	8	6
University of Puerto Rico	10		
The University of Tennessee	2	0	
University of North Texas	10	7	0
James Madison University	5		
Norfolk State University	1	0	0
Virginia Polytechnic Institute & State Univ.	10	7	6
Virginia State University	0		
Central Washington University	0		
University of Wyoming	1		
Total Graduates	**209**	**105**	**18**

*T&I undergraduate programs terminated 1990

Table 2. Institutional Characteristics

	No. Below Standard	No. Meeting Standard	No. Exceeding Standard	% Meeting or Exceeding Standard
1. Do you have a functioning T&I advisory committee?	14	13	1	50
2. Advisory committee is composed of instructors administrators, state staff, students and business/industry/ labor.	15	12	1	46.4
3. Your insitution has an agreement with a state or national occupational testing service.	8	16	4	71.4
4. Your program has a policy of granting credit based upon an occupational competency examination.	8	15	5	71.4
5. A system exists to evaluate the occupational experience of candidates based upon state requirements for certification.	4	21	3	85.7
6. The major technical skills are identified to ensure that a student has the necessary skills required for area in which certification is sought.	8	18	2	71.4
7. A file is maintained for each applicant's occupational skill verification.	6	20	2	78.6
8. Pre-service education of at least 30 clock hours and a program of inservice, on-site new teacher assistance is provided during the first year of service.	8	15	5	71.4

Table 2. Institutional Characteristics (continued)

	No. Below Standard	No. Meeting Standard	No. Exceeding Standard	% Meeting or Exceeding Standard
9. Your T&I teacher education program uses a performance based system of instruction and assessment for all students.	9	17	2	67.9
10. Your T&I teacher education program allows for T&I teacher educators to select sites and supervise students training/ field service requirements.	8	17	3	71.4
11. Institutional support is adequate in all areas.				
a. travel	12	15	1	57.1
b. adequate faculty	11	16	1	60.7
c. support staff	15	22	1	46.4
d. interagency co-operation	4	22	2	85.7
e. operating expense	17	10	1	39.3
f. professional and technical development	6	21	1	78.6
g. qualified T&I program leader	3	20	5	89.3

n=28

Table 3. Qualifications of T&I Teacher Educators

	No. Below Standard	No. Meeting Standard	No. Exceeding Standard	% Meeting or Exceeding Standard
1. All T&I faculty members met existing state requirements for a T&I certificate.	7	16	5	75.0
2. All T&I faculty members possess a minimum of a masters degree with emphasis in T&I education.	2	16	10	92.9
3. All T&I faculty members have at least three years of T&I teaching experience in a state approved program.	7	10	11	75.0

n=28

Table 4. Internship/Service

	No. Below Standard	No. Meeting Standard	No. Exceeding Standard	% Meeting or Exceeding Standard
1. Your T&I program provides an avenue for teachers to update their technical skills.	5	17	6	82.1
2. An inservice program is provided for continuing development of professional and occupational competencies of teachers.	2	22	4	92.9
3. Your T&I program provides instruction which enables craftspersons to make the transition to the role of teacher.	2	19	7	92.9

n=28

Table 5. Program Competencies

Courses	Yes	No	Included in another course	% Offering or including in another course
Does your T&I program offer separate courses of at least 3 quarter hours which allow students to gain professional competencies in the following areas?				
1. Survival skills	18	0	10	100%
2. Program planning, i.e., community surveys, advisory committees	15	2	11	92.9%
3. Resource usage and occupational analysis	20	3	5	89.3%
4. Curriculum development	23	2	3	92.9%
5. Instructional execution methods	26	1	1	96.4%
6. Laboratory management	23	1	4	96.4%
7. VICA	17	3	8	89.3%
8. Student evaluation	18	2	8	92.9%
9. Program evaluation (follow-up studies and other means)	16	4	8	85.7%
10. Knowledge of related organizations and agencies i.e., student organizations, professional associations, etc.	17	4	7	85.7%

Table 5. Program Competencies (continued)

Courses	Yes	No	Included in another course	% Offering or including in another course
11. Principles of vocational education, i.e., foundations, history, philosophy, legislation etc.	20	1	7	96.4%
12. Industrial cooperative training	16	6	6	78.6%
13. Special populations (handicapped & disadvantaged)	18	2	8	92.9%

n=28

Table 6. Sex Equity

	No. Below Standard	No. Meeting Standard	No. Exceeding Standard	% Meeting or Exceeding Standard
1. Your program encourages faculty to play a key role in increasing non-traditional candidates to T&I programs	7	18	3	75.0
2. Your program has identified plans for recruitment, placement, and retention of female students	11	15	2	60.7
3. T&I teachers are offered workshops in sex equity	10	16	2	64.3

n=28

NATIONAL ASSOCIATION FOR TRADE AND INDUSTRIAL EDUCATION

Questionnaire on Teacher Education Standards

Return Questionnaire to: Lester G. Duenk
Division of Vocational and Technical Education, Virginia Tech, Blacksburg, VA 24061-0254

Directions: If your program offers T&I teacher certification to students who are enrolled in an allied program please indicate the area below:

___Trade & Industrial education
___Vocational industrial education
___Industrial education
___Industrial technology
___Vocational education
___Occupational/adult education
___Vocational technical education
___Engineering technology
___Industrial occupations
___Trade speciality, i.e. building trades
___T&I certification (without degree)
___Other (name)_____
___Other (name)_____

Please interpret the word "T&I" to mean any of the above in which T&I certification is provided.

Please respond to the following abridged Standards of Excellence for T&I (USDE, 1985) recommendations by checking the appropriate self-evaluation.

	Below Standard	Meets Standard	Exceeds Standard (Comments)
A. Institutional Characteristics			
1. Do you have a functioning T&I advisory committee?			
2. Advisory committee is composed of instructors, administrators, state staff, students and business/industry/labor.			
3. Your institution has an agreement with a state or national occupational testing service.			

	Below Standard	Meets Standard	Exceeds Standard (Comments)
4. Your program has a policy of granting credit based upon an occupational competency examination.			
5. A system exists to evaluate the occupational experience of candidates based upon state requirements for certification.			
6. The major technical skills are identified to ensure that a student has the necessary skills required for area in which certification is sought.			
7. A file is maintained for each applicant's occupational skill verification.			
8. Pre-service education of at least 30 clock hours and a program of in-service, on-site new teacher assistance is provided during the first year of service.			
9. Your T&I teacher education program uses a performance or competency-based system of instruction and assessment for all students.			
10. Your T&I teacher education program allows for T&I teacher educators to select sites and supervise student training/field service requirements.			

	Below Standard	Meets Standard	Exceeds Standard (Comments)
11. Institutional support is adequate in all areas. If not, check which of the following is below standard. ___(a) travel ___(b) adequate faculty ___(c) support staff ___(d) interagency co-operation ___(e) operating expense ___(f) professional and technical development ___(g) qualified T&I program leader			
B. Qualifications of Teacher Educators 1. All T&I faculty members met existing state requirements for a T&I certificate.			
2. All T&I faculty members possess a minimum of a masters degree with emphasis in T&I education.			
3. All T&I faculty members have at least three years of T&I teaching experience in a state approved program.			
C. Internship/Inservice 1. Your T&I program provides an avenue for teachers to update their technical skills.			

	Below Standard	Meets Standard	Exceeds Standard (Comments)
2. An inservice program is provided for continuing development of professional and occupational competencies of teachers.			
3. Your T&I program provides instruction which enables teachers to make the transition to the role of teacher.			

	Yes	No	Included in Another Course (Comments)
D. Program Competencies Does your T&I program offer separate courses of at least 3 quarter hours which allow students to gain professional competencies in the following areas: 1. Survival skills			
2. Program planning, i.e., community surveys, advisory committees			
3. Resources usage and occupational analysis			
4. Curriculum development			
5. Instructional execution (methods)			
6. Laboratory management			
7. VICA			
8. Student evaluation			

	Yes	No	Included in Another Course (Comments)
9. Program evaluation (follow-up studies and other means)			
10. Knowledge of related organizations and agencies, i.e., student organizations, professional associations, etc.			
11. Principles of vocational education, i.e., foundations, history, philosophy, legislation, etc.			
12. Industrial cooperative training			
13. Special populations (handicapped & disadvantaged)			

	Below Standard	Meets Standard	Exceeds Standard (Comments)
E. Sex Equity 1. Your program encourages faculty to play a key role in increasing non-traditional candidates to T&I programs.			
2. Your program has identified plans for recruitment, placement, and retention of female students.			
3. T&I teachers are offered workshops in sex equity.			